AMENDMENTS TO THE CLAIMS

1. (Original) An optical transmitter, comprising an optical modulation processing unit that includes:

a signal carrier-suppressed pulse modulating unit that performs signal carrier-suppressed pulse modulation on a light source signal to thereby create a carrier-suppressed-return-to-zero signal;

a phase modulating unit that performs phase modulation on a data signal based on the carrier-suppressed-return-to-zero signal to thereby convert the data signal into a phase-modulated signal; and

an optical filtering unit that filters out redundant frequency components included in the phase-modulated signal.

2. (Original) The optical transmitter according to claim 1, wherein

the signal carrier-suppressed pulse modulating unit performs the signal carrier-suppressed pulse modulation based on a clock signal of a frequency that is determined by a signal frequency of the data signal, and creates the carrier-suppressed-return-to-zero signal such that peaks of an optical frequency spectrum are separated from each other by the signal frequency; and

the optical filtering unit filters out all frequency components that fall outside a frequency band determined by the signal frequency.

3. (Original) The optical transmitter according to claim 1, wherein the optical modulation processing unit is provided in plurality and each optical modulation processing unit performs

modulation on each of a plurality of data signals and creates an optical output signal, and the optical transmitter further comprises:

an optical combining unit that wavelength-multiplexes the optical output signals output from the optical modulation processing units.

4. (Original) The optical transmitter according to claim 1, wherein the optical modulation processing unit further includes a differential coding unit that performs differential-coding on the data signal.

5. (Original) The optical transmitter according to claim 1, wherein the signal carrier-suppressed pulse modulating unit is a Mach-Zender interferometer optical modulator.

6. (Original) An optical transmitter, comprising an optical modulation processing unit that includes:

a phase modulating unit that performs phase modulation on a data signal to thereby convert the data signal into a phase-modulated signal;

a signal carrier-suppressed pulse modulating unit that performs signal carrier-suppressed pulse modulation on the phase-modulated signal to thereby convert the phase-modulated signal into a phase modulated carrier-suppressed-return-to-zero signal; and

an optical filtering unit that filters out redundant frequency components included in the phase modulated carrier-suppressed-return-to-zero signal.

7. (Original) The optical transmitter according to claim 6, wherein

the signal carrier-suppressed pulse modulating unit performs the signal carrier-suppressed pulse modulation based on a clock signal of a frequency that is determined by a signal frequency of the data signal, and creates the carrier-suppressed-return-to-zero signal such that peaks of an optical frequency spectrum are separated from each other by the signal frequency; and

the optical filtering unit filters out all frequency components that fall outside a frequency band determined by the signal frequency.

8. (Original) The optical transmitter according to claim 6, wherein the optical modulation processing unit is provided in plurality and each optical modulation processing unit performs modulation on each of a plurality of data signals and creates an optical output signal, and the optical transmitter further comprises:

an optical combining unit that wavelength-multiplexes the optical output signals output from the optical modulation processing units..

9. (Original) The optical transmitter according to claim 6, wherein the optical modulation processing unit further includes a differential coding unit that performs differential-coding on the data signal.

10. (Original) The optical transmitter according to claim 6, wherein the signal carrier-suppressed pulse modulating unit is a Mach-Zender interferometer optical modulator.

11. (New) A method for optical transmission, comprising:

performing signal carrier-suppressed pulse modulation on a light source signal to thereby create a carrier-suppressed-return-to-zero signal;

performing phase modulation on a data signal based on the carrier-suppressed-return-to-zero signal to thereby convert the data signal into a phase-modulated signal; and

filtering out redundant frequency components included in the phase-modulated signal.

12. (New) The method according to claim 12, further comprising:

performing the signal carrier-suppressed pulse modulation based on a clock signal of a frequency that is determined by a signal frequency of the data signal, and creating the carrier-suppressed-return-to-zero signal such that peaks of an optical frequency spectrum are separated from each other by the signal frequency; and

filtering out all frequency components that fall outside a frequency band determined by the signal frequency.

13. (New) A method for optical transmission, comprising:

performing phase modulation on a data signal to thereby convert the data signal into a phase-modulated signal;

performing signal carrier-suppressed pulse modulation on the phase-modulated signal to thereby convert the phase-modulated signal into a phase modulated carrier-suppressed-return-to-zero signal; and

filtering out redundant frequency components included in the phase modulated carrier-suppressed-return-to-zero signal.

14. (New) The method according to claim 13, further comprising:

performing the signal carrier-suppressed pulse modulation based on a clock signal of a frequency that is determined by a signal frequency of the data signal, and creating the carrier-suppressed-return-to-zero signal such that peaks of an optical frequency spectrum are separated from each other by the signal frequency; and

filtering out all frequency components that fall outside a frequency band determined by the signal frequency.